"Garbaciak, Steve"
<Steve.Garbaciak@arcadis-us.com>

To

Subject Plainwell TCRA gas line exclusion tech memo

08/12/2008 02:20 PM

History: This message has been forwarded.

Mike:

On May 12 2008 I sent you an e-mail that followed a series of meetings and phone calls wherein we discussed the gas line utility crossings under the Kalamazoo River in the TCRA project area. Specifically we were indicating that it would not be possible for us to safely dig underwater to remove sediments within 30 feet of the gas lines.

Subsequent to the May 12th e-mail we continued to discuss this issue, and you requested that ARCADIS, on behalf of the KRSG, provide to you a memorandum that summarized the efforts we took to work with the utilities to provide more accurate location information for the pipelines, examples where excavation near similar utility crossings was performed closer than 30 feet, and methods for removing sediments other than the long-stick excavator approach currently in use. The requested memo is attached to this message. The memo concludes that our original exclusion area of 30 feet on either side of the pipeline remains unchanged.

As we discussed on the telephone today, we are expecting your verbal approval to demobilize the resuspension control structures still in place around the proposed exclusion area, so that we can maintain our construction schedule in downstream reaches. If you need any further information, please contact me. Thanks.

Steve

Stephen Garbaciak Jr.
P.E.- IL, MI, NY, WI
Vice President
ARCADIS
30 W. Monroe St., Suite 1710
Chicago, IL 60448-2404
Office: 312-332-4937, ext. 12
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steve.garbaciak@arcadis-us.com

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64530_017811100_Underground Gas Utility Tech Memo.pdf

ARCADIS
Infrastructure, environment, facilities

ARCADIS
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Suite 1710
Chicago
Illinois 60603
Tel 312.332.4937
Fax312.332.4434

Mr. Michael Ribordy
On-Scene Coordinator
USEPA Region 5
77 West Jackson Boulevard (SE-5J)
Chicago, IL 60604-3590

INDUSTRIAL

Subject:
Technical Memorandum – Underground Utility Lines at the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Time-Critical Removal Action (TCRA)

Date:
August 12, 2008

Contact:
Steve Garbaciak

Phone:
312.332.4937 ext. 12

Email:
steve.garbaciak@arcadis-us.com

Our ref:
B0064530.00675

Dear Mr. Ribordy:

On behalf of the Kalamazoo River Study Group (KRSG), ARCADIS has prepared this technical memorandum to detail the activities performed, and alternative approaches considered, while pursuing the excavation of soil and sediment located in the vicinity of two underground natural gas utility pipelines located under the Kalamazoo River.

Background

Consumers Energy operates a 20-inch diameter stainless steel natural gas pipeline near river station 21+00 of the Kalamazoo River. This pipeline is located in TCRA Removal Areas 10A, 10B, and Mid-Channel Area C. Michigan Gas Utilities (MGU) operates an 8-inch diameter stainless steel natural gas pipeline that is located approximately 60 feet west of the Consumers Energy pipeline in the same removal areas (see the attached figure). As-built drawings of the pipelines, including pipe elevations, were requested from both utility companies; however, neither company provided true as-built or reference drawings.

History of Discussions and Activities

In an email dated April 2, 2008 (see attachment), Consumers Energy stated that if the KRSG could not determine the depth of the pipelines, underwater material on 30 feet of either side of the pipeline should be left in place to avoid compromising the cover maintained above the line. In a letter dated April 4, 2008 (see attachment) MGU also mandated a 30-foot buffer zone around their pipeline. Not removing the submerged material in the buffer zone would result in approximately 1,300 cubic yards of sediment originally targeted for removal being left in place.

It is important to note that utility lines located under water have been encountered at other ARCADIS sediment removal projects. Specifically, a 300-foot buffer was used to protect a fiber optic line on the Hudson River in New York, and a 50-foot buffer was used to protect buried high pressure gas (oxygen and acetylene) lines on both the Fox River in Wisconsin and on a wetlands construction project in Texas. These buffer zones are generally determined by the operators of the utility lines, and they also take into consideration the safety of the excavation equipment operators and the risk associated with interruption of the service due to compromise of the utility line.

In an effort to precisely locate the pipelines, a KRSG diving subcontractor performed an underwater ground penetrating radar (GPR) survey of the area on April 25, 2008. This survey was not capable of producing burial depth information. KRSG research indicates that technologies exist to locate underwater utilities; however these are designed for finding utilities in deeper water with lower velocities, such as a bay, and are generally not suitable for this project. No other methods for locating the depth of pipelines have been identified.

With no means to accurately determine the burial depth of the pipelines, in March of 2008, the KRSG requested that Consumers Energy and MGU temporarily shut down or reroute their pipelines to allow excavation activities to proceed as planned. However, both companies informed the KRSG that these were single feed lines and that there was no way to temporarily reroute or shut down these lines without undertaking a lengthy and expensive project to install temporary lines.

On June 18, the KRSG, USEPA, MDEQ, and MGU participated in a conference call to discuss potentially decreasing the extent of the buffer zone. MGU maintained during the conference call that a 30-foot buffer zone was necessary to maintain the integrity of the pipelines and their cover, and that the decision to dig any closer to the pipelines was up to the excavation contractor. As a result, no formal changes were made to the buffer zone. MGU informed the KRSG that they may possess additional as-built information for the pipelines. Based on the MGU description of the documents, it seems likely that the documents consist of permitting information, not information regarding the depths of the pipelines. MGU has not yet provided this information to the KRSG.

On June 19, 2008, the KRSG received an as-built drawing for the 20-inch pipeline from Consumers Energy. The drawing was created in 1967 and includes the depth of the pipeline below the river surface. However, the drawing does not include a standard elevation frame of reference, so the information cannot be reliably applied to current river conditions. The drawing references a minimum 60-inch of cover of

sediment above the pipeline. The drawing did not include any other relevant information concerning the elevation frame of reference.

Dredging Alternatives Considered

Diver Assisted Dredging. According to the diving subcontractor that performed the underwater GPR survey for the KRSG, velocities in the river at the pipeline location are high and visibility is low. Daily velocity measurements collected in the area indicate the average velocity is approximately 1.5 feet per second (ft/s), with maximum velocities near 4 ft/s. Although it is possible to place divers in the river to conduct sediment dredging operations (if proper safety precautions are employed), the high river velocities, low visibility, and safety precautions would reduce the productivity of diver assisted dredging. Removal rates for diver assisted dredging are much lower than the rate of excavator-based dredging, and would likely cause significant schedule delays.

High-Vacuum Removal. The KRSG also examined the feasibility of using a high-vacuum sediment removal technique that would include a steel pipe with a rubber bumper and underwater camera attached to the end of the excavator attachment. The rubber bumper and underwater camera would help to protect the pipelines and could eliminate the need to employ divers during dredging activities. Suction to the pipe would be provided by a vacuum truck pulling through a series of vacuum boxes (to settle out the removed materials) located on the bank.

Although sediment dredging through high-vacuum removal can be successful under some circumstances, this technique is significantly different than the mechanical dredging techniques used on the project to date. This deviation in construction approach would require a significant amount of engineering prior to implementation to ensure the approach is viable and to assess its impact on the cost and schedule of the project.

Preliminary estimates of applying the high-vacuum removal approach indicate that the cost and schedule impact would be significant. For instance, the project currently utilizes gravity drainage for sediment dewatering and a pugmill for sediment processing. Different sediment processing (e.g., filter presses) and water treatment methods (e.g., large volumes of water, multiple stage treatment) would be required for high-vacuum sediment removal, as the methods currently used on the project would not be completely compatible with sediment vacuuming. Due to the different dredging, water handling, and sediment processing techniques that would be

required, the project could not be completed within the current schedule or budget if high-vacuum sediment removal is employed.

Exclusion Area

In accordance with the information provided above, ARCADIS' position concerning the inability to safely dig underwater within 30 feet of the gas utility lines, first presented to you through a series of telephone calls and meetings, culminating in an e-mail transmission on May 12, 2008, remains unchanged.

If you have any questions, please do not hesitate to contact me.

Sincerely,

ARCADIS

Stephen Garbaciak Jr., P.E.
Vice President

EJH/plf

Copies:
Samuel Borries, USEPA
Paul Bucholtz, MDEQ
James Saric, USEPA
Jeff Keiser, CH2M HILL
J. Michael Davis, Esq., Georgia-Pacific Corporation
Mellonie Fleming, Esq., Georgia-Pacific Corporation
David Guier, Millennium Holdings, LLC
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Paul Montney, P.E., Georgia-Pacific Corporation
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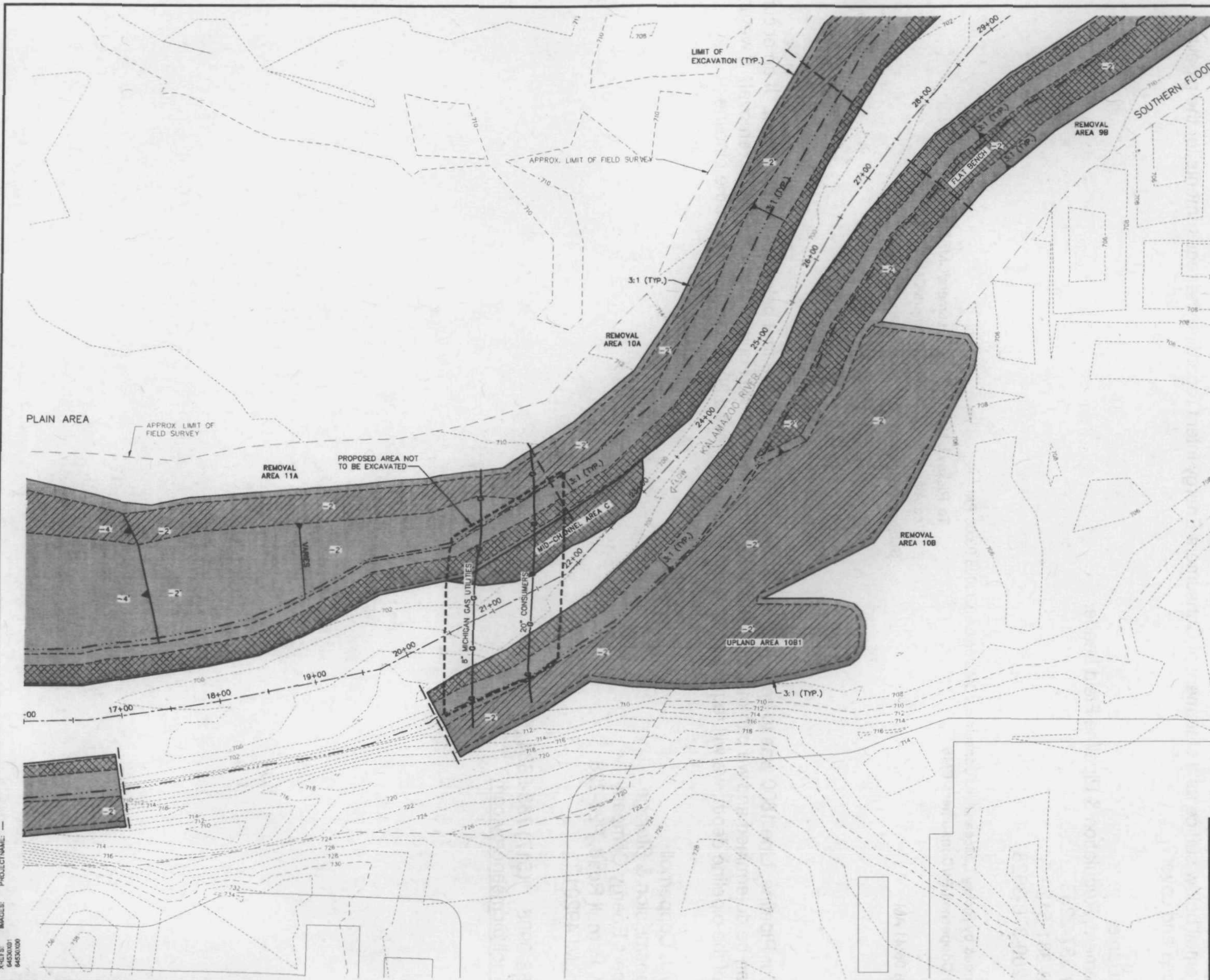
Michael Erickson, P.E., ARCADIS



LEGEND:

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PRE-CONSTRUCTION DAM-IN MEDIAN WATER LINE (APPROX.)
- LIMIT OF REMOVAL AREA (APPROX.)
- GRADE BREAK
- UNIFORM DEPTH EXCAVATION AREA (WITH REQUIRED DEPTH OF REMOVAL)
- GENERAL EXCAVATION AREA (ELEVATION AND DEPTH VARIES)
- MINIMUM REQUIRED DEPTH OF REMOVAL
- MINIMUM REQUIRED REMOVAL DEPTH AREA BOUNDARY (WITH INDICATOR ARROW POINTING TOWARD AREA OF DEEPER MINIMUM REMOVAL DEPTH)
- GAS MAIN

DRAFT

0 50' 100'
GRAPHIC SCALE

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER INC./PORTAGE CREEK/
KALAMAZOO RIVER SUPERFUND SITE
PLAINWELL TCRA DESIGN REPORT

GAS MAIN LOCATION PLAN

ARCADIS

FIGURE
1

Hritsuk, Eric

From: Rickey L Mcdaniel [rlmcdaniel@cmsenergy.com]
Sent: Wednesday, April 02, 2008 2:15 PM
To: Hritsuk, Eric
Subject: Fw: Kalamazoo River PCB Clean up

Eric,

Will the email below suffice as a statement of Consumers Energy intent regarding the requirements for the pipeline clearances and cover?

Rick McDaniel
Measurement, Regulation & Pipeline Field Leader
Tel: 269-337-2233
Fax: 269-381-5129
Mobile: 269-370-3628

----- Forwarded by Rickey L Mcdaniel/KI/Consumers/CMS on 04/02/2008 03:08 PM -----

Timothy J Coppernoll/Pr/Consumers/CMS

04/02/2008 06:41 AM

To Rickey L Mcdaniel/KI/Consumers/CMS@CMS
cc Alan D Redding/Pr/Consumers/CMS@CMS
Subject Kalamazoo River PCB Clean up

Rick - Our Pipeline, Line 1800 was to be installed at a minimum depth of five feet below firm river bottom. If an accurate depth can be determined and we can maintain our cover requirements, we could allow some cover removal. If we are not certain of the pipeline depth, we will require that no soil is to be removed 30 feet either side of the pipeline.

Timothy J. Coppernoll
Gas Transmission & Storage
Consumers Energy Company
1945 W. Parnall Road, P23-228
Jackson, MI 49201

(517) 788-0998 (517) 788-5884 (FAX)
tjcoppernoll@cmsenergy.com

MICHIGAN

Michigan Gas Utilities Corporation
711 Starlite Drive
Benton Harbor, MI 49022
www.michigangasutilities.com

Arcadis
Attention: Steve Garbaciak
31 W. Monroe
Suite 1710
Chicago, Illinois 60603

April 4, 2008

Dear Mr. Garbaciak

I am writing in regards to the Kalamazoo river project in the vicinity of an eight inch gas pipeline operated by Michigan Gas Utilities, which crosses the river near Plainwell Michigan. As I discussed with Eric Hritsuk, your project engineer, accurate location mapping is unavailable for the depth of our pipeline beneath the river. The project plans call for excavation of the Kalamazoo river bottom and banks at this location. This poses a significant safety concern as well as a potential for damage to our facilities. Also, once excavation has been completed, the removal of cover from the top of our facility can cause a future movement of our pipeline due to its buoyancy in relation to the water. If our pipeline floats up into the river cross section it becomes very susceptible to debris floating downstream.

This pipeline was installed utilizing directional boring technology which was relatively new at the time of installation. It operates at a pressure of 675 psig. Damage to this line could cause the release of a high volume of natural gas in a very short time which could be ignited through many sources including the excavation equipment, electrical contacts or engines in the area or even static electricity built up from the gas escaping the pipe. I would like to encourage the following procedures be followed when working in this vicinity.

- Just prior to excavation, MGU will utilize pipeline locating equipment to mark our location on the banks of the river in response to a Miss Dig order which you create.

- Arcadis will utilize best efforts to verify our main location and depth in the river channel prior to any excavation. According to Consumers Energy you may have a diver in the water to accomplish this task for their facilities which would be an excellent idea for MGU's facilities also.

- As the river excavation proceeds, no soil removal will occur with in 30 feet of our facilities nor will excavation occur between the existing Consumers Energy pipeline and our pipeline.

MICHIGAN

Michigan Gas Utilities Corporation
711 Starlite Drive
Benton Harbor, MI 49022
www.michigangasutilities.com

- During all excavation within the proximity of our facilities MGU will have an inspector on site in order to quickly react to any abnormal operating conditions that arise. MGU will locate and verify effective operation of safety shut down valves for this segment of pipeline prior to work in the area.

These recommendations will provide for the safety of your crews and the public, protection of our facilities and assurance for uninterrupted natural gas delivery to the Otsego- Allegan region during the clean up project. Your point of contact in the local operations office will be Craig Barragry who can be reached at 269-692-6352. Craig will arrange for the inspectors to be on the work site when required. I can be reached at 269-927-5558.

Please call me with any questions on this matter.

Sincerely,

William H Muller
Senior Engineer
Michigan Gas Utilities

P.C.: C. Barragry
B. Watkins
C. Hauska

Elyse, John, and Bill,

This email is a follow up to our conference call last week regarding the utility lines identified in EPA's Removal action in Plainwell Michigan. I only have your email addresses so I hope you can bring in the necessary technical folks on your end.

I have had a chance to discuss our call with Steve Garbaciak of Arcadis, the Engineer of Record for the Removal Action design. Steve has agreed to share the information that Arcadis has for the area (including elevation information, info generated during pipeline location attempts, hydraulic models). In turn we would like to receive whatever information you may have for the utilities including as-built drawings. Following an exchange of this information we then need to set up a conf call to discuss the details and see if we can come up with a plan for how we conduct our work in this area. I hope that the exchange of info will happen quickly so we can set up a call for next week or the following week.

I am sure that we will struggle with meshing our schedules on such short notice but I am available starting Monday from 10:30 to noon, and all day on Tuesday 6/24 and again on 6/30, 7/1 and 7/2.

If you have any questions don't hesitate to contact me.

- Paul

Paul Bucholtz
Environmental Quality Analyst
Remediation and Redevelopment Division
517-373-8174

5-5-08 Inspection Report.pdf

Attachment E - Hydraulic Analysis - 02-13-07- Text.pdf